

BOOK REVIEWS

Plant science for everyone: Kosciusko's new alpine 'Flora'

Costin, A.B., Gray, M., Totterdell, C.J. & Wimbush, D.J.
'Kosciusko Alpine Flora', 1979, C.S.I.R.O. & Collins.

'Kosciusko Alpine Flora' is a book of which the authors can feel justly proud. The depth and breadth of coverage of the current knowledge of taxonomy, biology and ecology of their subject has been surpassed in Australia only in the small and better known animal groups, such as the birds and mammals. Of the Australian Floras of current times the 'Flora of the ACT' (ca. 1300 spp. in ca. 2,000 square km) and 'The Flora of the Sydney Region' (ca. 2,500 spp. in ca. 20,000 square km) are the smallest, and in their 450 and 725 pages, respectively, it has been impossible to include other than the briefest descriptions and additional data for each species and minimum of other information. Kosciusko's alpine region, about 100 square km in area, is tiny in comparison, but bears a rich flora of about 230 well-defined taxa (including at least 27 naturalized aliens and 21 endemics). In a volume of the size of this work there is much room for additional fare of wider appeal, and the authors have provided this admirably.

The book is divided into three main sections. In an introductory chapter Dr Costin details the physical and climatic character of the region and its evolution, and the history of human influence on the vegetation, starting with the earliest evidence of aboriginal occupation only 4,000 years ago, and ending with the resurrection of the flora by the cessation of more than 50 years of grazing sheep and cattle and the new dangers of increased tourist activity. Among the early European visitors to the region are the botanical collectors, among whom Ferdinand von Mueller deservedly rates a lengthy mention. As is typical of the whole text, Dr Costin avoids the superficial dogmatic approach to his subject which detracts from some popular works. Thus in the discussion of the geomorphological development of the region he introduces the reader to the way in which various bits of evidence have been pieced together to provide our picture of the past and present-day of the region. The text is supported by ample illustrations, maps and diagrams, but the plates in this chapter are unfortunately un-numbered and not referred to in the text.

The second chapter, "The plants and plant communities", written by Dr Costin and Mr Wimbush, initially deals with adaptations of the plants to habitation of their general alpine and local environment (growth form, life form and habit, physiological attributes). The systematic affinities with other regions of the world and the means by which the strong southern and cosmopolitan links were attained are touched on. The main plant communities are then described, using text, tabulation with predominant species and local physical distribution, and photographs and diagrams. Examples of the dynamic nature of the vegetation are given.

The final and largest chapter is the taxonomic treatment of the alpine flora by Mr Gray, which takes up 151 pages of text and 289 separate colour plates, one for almost all species described. The text is written for the professional, although the uninitiated are invited to learn to use the keys and descriptions rather than simply resort to the alternative of matching with the plates. Some technical words used in the text are not included in the glossary, e.g. placenta (p. 209), papillate (p. 209, 225; papillose appears in the glossary), pyrene (p. 225), but most used seem to have been included. There is no explanation of the bracketed rare extreme range of variation in quantitative characters. The explanatory notes relating to the Flora were found with some difficulty by the reviewer under the heading "Identification and description" within the previous chapter. It would seem much more appropriate to place this section at the start of the Flora treatment where the explanation of the use of keys is located.

Other annoying features are the removal of basionyms and relevant synonyms to the index. With so much blank space and large type within the Flora treatment, there would have been no increase in the number of pages in accommodating them there. The method of referring to colour plate numbers is difficult to understand, when the usual abbreviation "pl." would have taken little more room overall and saved several readers considerable time working out what was meant - it was particularly frustrating for one person initially happening upon them on pp. 74 and 83 where they appear inexplicably in captions to the unnumbered black and white plates. Generic treatments are absent, which is perhaps justifiable in so small a flora, but data on distribution might have been of interest to the general reader.

All these criticisms, however, are minor. The lay-out of the Flora treatment is very clear. The marginal headings in the descriptions for distribution, notes and habitat are an innovation worth noting for future Floras, although it does take up space.

Descriptions are admirably detailed, including chromosome numbers and characters such as flower and fruit colour arising from the author's extensive field knowledge. Many references are given to scientific literature on the groups. In addition to the usual notes on distribution and local ecology, there are a wealth of notes outlining or providing reference to available knowledge on breeding systems, growth characteristics, physiology, hybridism, affinities, affect of cessation of grazing pressure, etc. Clear dichotomous keys are given to taxa at all levels, often with several characters in each lead (commonly including vegetative ones).

Most importantly Mr Gray has made the reader aware of the deficiencies in our knowledge. A wide array of problems, cited in about 10% of the taxa, exist in this small flora. These are described by notes, non-treatment at species level of two genera (*Cardamine*, *Celmisia*), and a usual preference for avoiding misapplication of names to undescribed species, which are nevertheless treated separately with full descriptions and notes. This approach is vital in Flora writing, for Floras can so easily give the impression that everything taxonomic is known.

The book abounds with illustrations, mainly colour plates, but also black and white plates, maps and diagrams. The photographs, almost entirely by Mr Totterdell, form a beautiful collection. A certain flatness in reproduction of the colour plates is evident. Only a few plates show significant lack of colour-registration. It is annoying that where up to 7 plates occur across a two-page spread, they are often not consistently arranged in the order of numbering.

This is a book which will have a wide appeal. For the inquiring mind, it will be pleasurable to read from cover to cover and provide a wealth of up-to-date information supplemented by many references to additional literature. The notes under the Flora treatment made this chapter a delight to read. For those who enjoy a well-illustrated book it provides a splendid, varied and well-annotated pictorial fare. To be sure these four Kosciusko alpine enthusiasts have realized their aim "to combine scientific merit and popular appeal". As one who shares their love of Australia's alpine regions, I believe they will help to win over many converts to the conservation of these delicately balanced areas.

Costin, A.B., Gray, M., Totterdell, C.J. & Wimbush, D.J. 1979 (November 5*). 'Kosciusko Alpine Flora', pp. 408, 351 numbered colour plates, 6 numbered figures, 5 tables and many additional un-numbered colour and black/white plates, figures and maps. (Simultaneously published by Commonwealth Scientific and Industrial Research Organization, East Melbourne, and William Collins, Sydney.) Hard-bound \$25.00; paper-bound, referred to inside front of dust-jacket but not produced in first printing*.

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*From letter from B.J. Walby, Editor-in-Chief, CSIRO Editorial and Publications Service, 29 November, 1979.